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U. S. Department of Agriculture

DWARF FRUIT TREES

Make the Ideal Orchard
for your Home Garden . . .

ESPALIERS--trained Fruit Trees

The Pride of Old European Gardens
Now--proudly--American . . .

HENRY LEUTHARDT

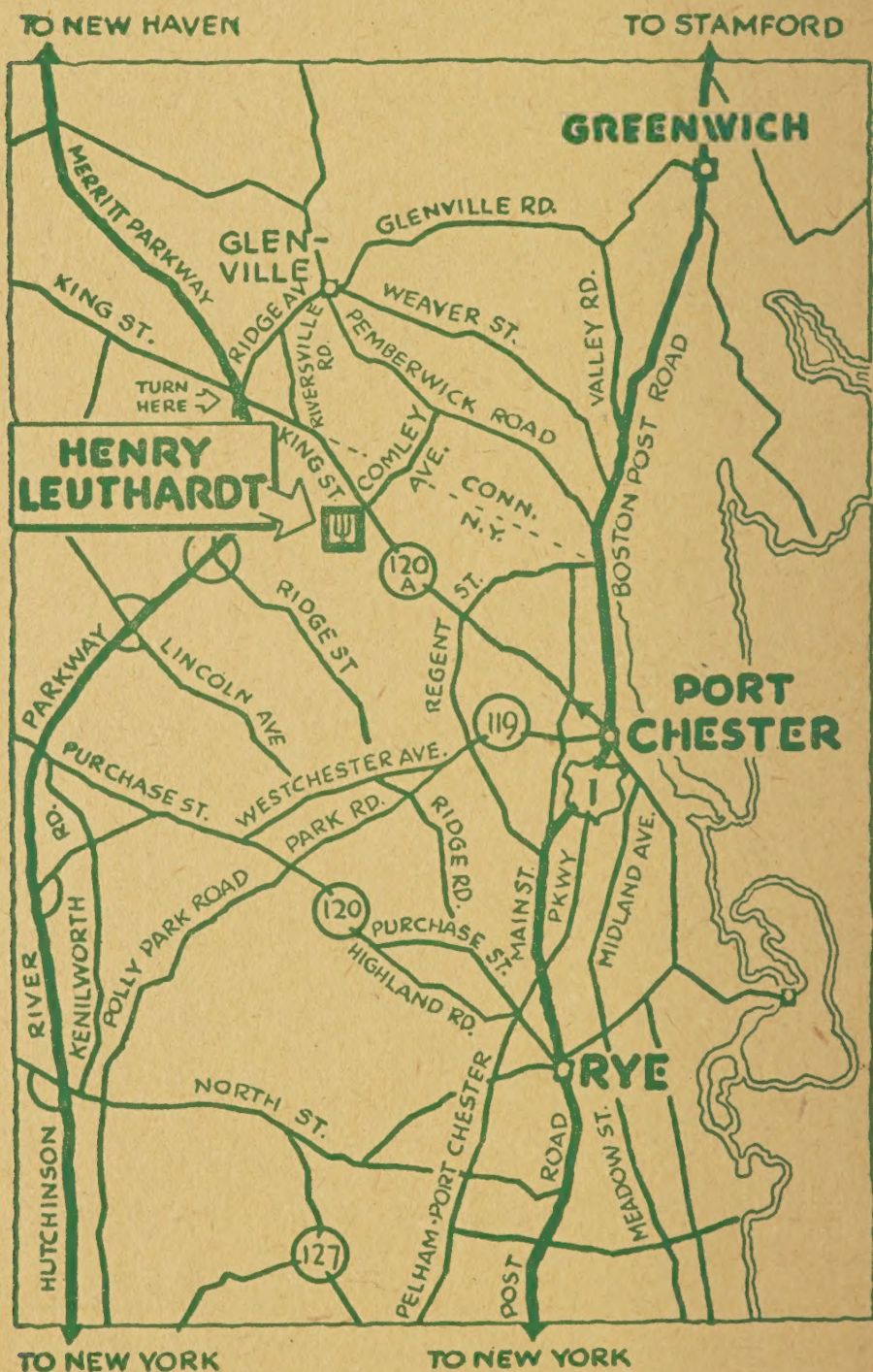
Rosetonchester . New York

Specializing Exclusively

VISIT OUR DISPLAY GROUNDS

SEEING IS BELIEVING

This Road Map will guide you, and a personal visit will show you many examples of our Dwarf and Espalier Trained Fruit Trees—helping you to make selections best suited to your individual needs.



HENRY LEUTHARDT

*America's Original Specialist in Dwarf and
Espalier-Trained Fruit Trees*

KING STREET opposite COMLY AVENUE

PORT CHESTER.....NEW YORK

Telephone: PORT Chester 5-2966

Dear Friend and Customer:

I am very pleased to send you this catalog.

In the text and pictures, it will give you the factual details about these most interesting and practical Dwarf and Espalier Trained Fruit trees. A careful reading will, I am sure, make you want to have some in your garden.

The growing of fruit trees in the Home Garden has become of great importance today. Fruit prices have increased considerably. Every home owner asks himself, "Why can't I grow my own fruit?"

You can—but buying and planting fruit trees is just the preliminary step. You can grow Dwarf fruit trees the easy and successful way, if you remember to pick a good location, make the right choice of trees, plant them properly, and care for them. Then, you are bound to enjoy the pleasures, profits and wonderful advantages these highly tested Dwarf trees offer.

I have devoted a lifetime specializing exclusively in Dwarf Fruit Trees. At my start, I had the inherited experience of a long line of Swiss ancestors who have excelled in the propagation of fruit trees. After consulting diverse Experimental Stations here and in the East, West and Mid-West, and, combining my 25 years experience in this country, I have succeeded in raising only those varieties which can be successfully by the home gardener in this country's climate, and, I can say that every statement in the catalog is made in good faith and with conviction of its truth, in which National and State Agricultural Experimental Stations support.

Naturally we are in business to make a living. In all sincerity, we will not sell you any trees if we have the slightest suspicion you have no chance of success. All my customers, who have come into personal contact with me, will vouch for this. Our business is not of an easy nature—it involves hard work, a large amount of knowledge, and an investment which is not justified by its income—but, my whole heart is in growing these Dwarf trees to perfection.

In conclusion, let me say that I take a personal interest in seeing that each of my customers has complete satisfaction, and gains a Fruitful new interest in his garden.

If you have a problem, please feel free to consult me for advice. My candid opinion will help you to gain the full advantage of my 40 years of knowledge in this field, extensive resources, sound policies, plus my ancestors' experience. These facts are your best assurance of lasting satisfaction.

We thank you for your valued inquiry. We also thank all our good customers who have cooperated wholeheartedly to make our business progressive.

*Very truly yours,
HENRY LEUTHARDT*

INTRODUCTION

Leuthardt's Dwarf and Espalier-Trained fruit trees, grown in New York State and in the province of Ontario, Canada, have proven their hardiness and resiliency over and over again—and especially during the extreme cold and heavy frost of the winters of 1943 and 1944. Our trees are all healthy, hardy specimens, carefully chosen and tried for their suitability to this country's soil and climate.

It will pay you to plant these Northern grown fruit trees that have proven most satisfactory to growers throughout the United States because of the extra strength and hardiness our rigorous climate develops in them.

Fruit trees grown in the southern states and sold here in the north have not the same capacity of surviving our zero winters as they have never experienced sub-zero weather and are in danger of losing their main branches, thus resulting in an imperfect tree when subjected to our cold winters.

For many years Leuthardt's stock has been the standard of excellence. It costs less than questionable sorts when high quality and genuine satisfaction are considered. Therefore, one is never justified in planting stock of cheap and inferior quality. At the present, owing to increased demand for dwarf trees, there is increased interest in growing clonal rootstocks. It is more difficult and more expensive to grow clonal rootstocks than seedling rootstocks. Seedling rootstock is never true, hence the variation in growth. We specialize only in clonal stock grown from our own stool plantation. Our trees are guaranteed to be the real Dwarf trees grafted on true Malling Rootstocks, Nos. 1, 2, 3, 7 and 9, according to their special needs. We are probably the only growers in America who keenly discriminate between Malling Strains for each particular purpose. Secondly, our stock consists of a large selection of fruit varieties that were introduced before the Embargo of 1928 and are now scarce in this country. Those who lived or traveled abroad will easily recognize these varieties in our catalog.

The United States Department of Agriculture is asking the co-operation of Nurserymen to stress the importance of growing more fruit trees at this time. Therefore, we urge you to plan now to include fruit trees in your "Garden." No home grounds, whether large or small, should be without fruit trees—the product of which contribute greatly to healthful and enjoyable meals. Moreover, it is interesting and educational to the young folks.

There is nothing like fresh fruit on the table. Home grown fruit, like home cooking, chockful of natural

vitamins, is by far the best. The luscious fruit is esteemed for its tree-ripened, juiciness, delicacy and richness of flavor. Select and grow the very choicest varieties, which are neither to be obtained in the stores or never reach the markets, because, due to their very fine qualities, they cannot be used commercially. Only the Home Owner can grow these special varieties and let the fruit stay on the trees until they have reached their peak of ripeness and flavor. Unless you can enjoy picking and eating fully ripe fruit from your grounds, you will never know what fresh fruit has to offer.

Our catalog contains a choice selection of trees suitable for a variety of purposes. Look it over. Select the trees best suited to your requirements. Plant fruit trees now and see them bear fruit next year.

Gardening has become a very popular outdoor sport among the American people. The garden has become a center of entertainment, rendering plenty of exercise, both mentally and physically. The increasing demand for our fruit trees will really exceed the available supply, because millions of people are now more garden-minded than ever before.

When you order direct from us, you can rest assured, not only are you dealing with a reliable house built through hard work, honesty and fair dealings, but, you are sure to get a Genuine Eastern Grown Leuthardt Tree. Our 25 Years' experience growing dwarf and Espalier fruit trees under American conditions is evidence our trees will thrive well wherever other fruit trees grow. Our many years of progress, satisfied customers and repeated orders is our Guarantee. You will find our stock sturdy, heavy rooted, true to name and quality and free from diseases. In fact, you will be most delighted with our fine class of nursery stock.

Orders will be filled in rotation. We urge you to send us your order now. Delay will result in disappointment. Buy Now and "Keep 'Em Growing" is our Motto in the Onward March to Peace and Plenty.

Genuine Dwarf and Semi-Dwarf Fruit Trees

Just the trees for your Home Garden or Farm. Whether your space is small or large—grow an orchard in your yard. Dwarf fruit trees offer many advantages, that the demand for this material on clonal understock increased not only among home growers, but among commercial growers, who, encouraged to grub out old standard orchards began looking for young trees.

Dwarf fruit trees grow one-third to half the height

of standard size trees. The Home Gardener can plant a few trees in the space usually occupied by one standard tree, and so several varieties covering the season can be planted in a small garden. As for the Fruit Grower, he can plant twice as many trees and he picks fruit twice as soon.

They bear a generous crop of bigger, more luscious and richly colored fruit than large trees do. No waiting years for fruit. Dwarf trees mature faster, thus bearing 10 to 12 years earlier than standard trees do. As a general rule, all dwarf fruit trees are fruit bearing at three years, with the exception of peaches and nectarines which varieties bear at two years. Under normal conditions, dwarf trees should bear fruit the following year after planting.

Because Dwarf fruit trees are limited in height, they are easier to prune—easier to spray—and fruit is easily harvested with a reduced damaged crop. Most dwarf trees will reach full bearing age at 8 years.

At maturity, the Dwarf fruit tree attains a height of 5 to 10 feet, and the Semi-Dwarf fruit trees 12 to 15 feet.

Plant Dwarf fruit trees 8 to 10 feet distance each way. Plant Semi-Dwarf trees 15 to 20 feet distance each way, according to variety and soil. But, if space permits, fruit trees may be planted further apart, if desired.

Much interest has developed in dwarf fruit trees since divers experimental stations throughout the country were able to prove to both the trade and the gardeners alike, that apples grafted or budded on certain of the Malling stocks really are size-controlled, early cropping, long lasting and fruitful, and the call for such trees has been far greater than the supply.

Of course, some critical fruit growers whose experience with dwarf trees in the past was disappointing, are still unconvinced that dwarf apples are any good and in some instances they have more or less advised gardeners against even trying dwarf trees even tho they had no experience with pedigreed root stocks. Visit the large plantings at some of the leading Experimental Stations where all the 16 types of Malling stocks have been under test for years—full sized trees in many varieties, showing the merits of each type of stock.

Malling stocks are not really new—they are simply the result of careful selection over a series of years from all the so-called Paradise, Doucin and other stocks that were in use in Europe. In the course of a century or two, varying types of the root propagated stocks had become pretty much mixed and when buying from wholesale propagators, a grower was liable to have a wide variation in the growth of the variation he worked—of the existing nine so-called doucin or paradise rootstocks,

some five were especially selected as the best available for Dwarf and Semi-Dwarf fruit trees to provide a range of performances to cover all needs. They contain within themselves all the qualifications desired. Certain varieties must be sometimes on one and sometimes on another of the various root stocks, to adjust themselves to climates, soils, dampness, dryness, height, size, etc.

By the intelligent use of the selected rootstocks now in circulation, trees can be produced to meet various requirements of the individual grower.

How Mallings stocks came about is generally well known. Prior to 1927, Dr. Wellington and his successor, Dr. R. G. Hatton, at the East Malling Research Station, Kent, England, perfected the clonal root stocks, by separating the various stock, identified and classified the rootstocks and designated them by numbers and making annual distributions to the trade and educational institutions.

The number has no reference whatever to performance or desirability, but merely indicates the distinct type of rootstock described by the Research Station to avoid the mixture of two or more stocks. An accepted system of numbering has the advantages of meaning the same to the raisers throughout the world. The vast majority of the vegetatively propagated rootstocks in use today are designated by their Malling Stock Nos. 1 - II - IV - VII and IX which are now chiefly used for dwarfing apples.

As a given rootstock controls different varieties in different degrees—soil and other environmental conditions often control the growth and fruiting more than the rootstock. Malling IX for instance, does not dwarf all varieties to the same extent. Many fruit varieties perform differently on various clonal rootstocks.

Malling No. IX is the dwarfest stock. It is well suited for the home garden where ground space is limited. The ultimate size of this tree is 6 to 9 feet, depending upon the variety grafted.

Malling Nos. 1 - II - IV - VII are Semi-Dwarfing stock. These have proven valuable and favored for the commercial orchards, home gardens and farms.

Malling Nos. X to XVI are used for Standard size trees.

Other varieties of fruit are grafted onto their proper rootstocks also, thus making them dwarf in habit. Pears are propagated exclusively on Anger Quince which dwarfs most successfully. Although, we must double graft certain varieties since the Anger Quince does not take all varieties. Peaches and Nectarines are grafted on Almond; Plums and Apricots on St. Julien Plum; etc.

POLLINATION OF FRUIT TREES

All fruit varieties are classed as self-fruitful; partially self-fruitful or self-unfruitful due to poor pollen.

As a rule, if a specie is a good pollinator for one variety, it is a desirable cross for any other variety of the same fruit family. For instance, a Delicious makes an excellent pollinator planted with a McIntosh or other apple varieties. But, a specie of one family will never pollinate a specie of another family, such as an apple planted with a pear tree.

The lack of cross-pollination in a self-sterile variety, results in the dropping off of the young fruit and in crop failure. Partial self-fruitful trees may cause fruit to remain on the tree for a longer period of time, or even carry thru until harvest, but from poorly pollinated fruits are usually imperfect. In most cases, a fruit tree is benefited by cross-pollination with another compatible sort of the same family. The results are better crops. Plant trees within a 50 ft. radius to take care of pollination distance.

To guide the grower whose planting must be limited, we have indicated by symbols, certain varieties best suited to your needs.

APPLE—Varieties may be classified as self-fruitful or self-unfruitful. General experience has been that cross-pollination will usually result in better crops. Cortland, Delicious, Rome, Golden Delicious, Jonathan and Wealthy, make excellent pollinators and can be used to set fruit for early, medium or late varieties.

PEARS—Nearly all common pear varieties require cross-pollination with the exception of a few species. All pear varieties bear excellent pollen and have proven effective pollinizers for each other. However, the Bartlett and Seckel varieties are inter-sterile and should never be planted together, unless a third variety is provided, so proper fertilization can occur.

PLUMS—vary in their needs for cross-pollination according to specie and variety. Our plum varieties represent two distinct types; namely, the European and Japanese. Nearly all plum varieties require cross-pollination to fruit. These two species do not inter-cross freely. Hence, it is necessary to plant at least two European or two Japanese sorts together to insure a crop of fruit. Each sort is indicated by an "E" or "J" to help you distinguish the European or Japanese species.

PEACH Varieties are all considered self-fruitful
APRICOT planted alone. The most important excep-
NECTARINE tions are the J. H. Hale Peach and the
Riland Apricot which do not fruit satisfactorily
unless planted with another sort of the same family.
The Nectarine is not a Hybrid fruit. That is, the
result of crossing a peach with another fruit. The
tree of the Nectarine to all appearance resembles the
Peach tree. In growth, habit, and soils required, it
is similar to the peach family. The fruit differs from
the peach in that the skin is smooth, and the rich,
aromatic flesh has a flavor all its own. The Nectarine
is an exceedingly delicious dessert fruit.

QUINCE—varieties appear to be sufficiently self-fruit-
ful planted alone.

NUTS—The Filbert or Hazel Nut are self-sterile. Plant
two different varieties for cross-pollination. They
are quite hardy and fruit profusely when very young.

CHERRY—Almost all of the sweet cherries are unself-
fruitful, even tho they produce excellent pollen.
It is evident any two varieties will cross-pollinate
each other satisfactorily, with the exception of
Napoleon, Bing and Lambert which will not pollinate
each other and should be planted with another
variety to insure fruit.

All sour cherries are self-fertile and will bear fruit
planted alone.

The Duke or Semi-Sweet cherries (hybrid between
sweet and sour) are self-sterile and require cross-
pollination.

NOTE—Any sweet, sour or Duke cherry variety will cross-
pollinate each other. Plant Early bloomers with sweet varieites
and the late bloomers with sour varieties. The Black Tartarian
and Windsor are recommended as the best sort to meet all
requirements.

DWARF AND ESPALIER FRUIT VARIETIES

*—Self-Fruitful

G—Good Pollinator for
other sorts

E—European

S—Summer Ripening

F—Fall Ripening

W—Winter Ripening

J—Japanese

APPLE

Red McIntosh, GS
Yellow Transparent, *GS
Melba, S
Red Astrachan, S*
Early Harvest, S
Williams Early Red, S
Wealthy, GF *
Fameuse (Snow), GF
Cortland, GF
Duchess of Oldenburg, *GF
Gravenstein, F
Blenheim, F
Ribston Pippin, F
Northern Spy, GW
Yellow Newtown, *G
McIntosh Red, GS

York Imperial, *G
Anoka, F
Yellow Newtown, F
McIntosh Red, GW
R. I. Greening, *W
Delicious, GW
Jonathan, *GW
Rome Beauty, *GW
Richared Delicious, *GW
Canada Rennette, GW
Cox Orange, W
Gallia Beauty, W
A. G. Russet, GW
Stayman Winesap, W
Yellow Delicious, W
Spitzenberg, W*

PEAR

Bartlett, GS
Clapp's Favorite, S
Flemish Beauty, *GF
D. d'Angouleme, *GF
Seckel, GF
Kieffer, F
Beurre Bosc, F
Duchess de Merode, F
Sheldon, F
Gorham, F
Howell, F
Beurre d'Anjou, F
Winter Nelis, W
Doyenne de Comice, W
Tongern
Pastorem

CRABAPPLE

Hyslop, F
Dolga, S

NECTARINE

Red Roman
Hunter, F
Sure Crop, F
Boston
Victoria
Newtown
Lord Napier
Humboldt

PEACH

Champion, S
Carman, S
E. Elberta, S
Rochester, S
E. Crawford, S
Golden Jubilee, S
Valliant, S
Belle of Georgia, S
Cumberland, S
Yellow St. John, S
L. Elberta, F
L. Crawford, F
Eclipse, F
J. H. Hale, F
Rio Oso Gem, F
Hale Haven
Red Bird
Hiley
Golden East

QUINCE

Orange (Apple) F
Pineapple, S
Champion, F

APRICOT

Moorpark, S
Blenheim, S
Early Golden
Alexander
Superb
Hungarian
Riland, S
Plant with Perfection
Perfection

FILBERT NUT (Hazel)

Du Chilly
Barcellona
Daviana

FRUIT VARIETIES

PLUM

Reine Claude (Green Gage)
E*S
Bradshaw, E*
Moore's Artic, E*S
Lombard, E*S
Monarch, E*S
Abundance JS
Burbank, JS
Red June, JS
Shiro, JS
Santa Rosa, JS
Mamouth Gold, S
Shropshire Damson, E*F
Imperial Epineuse, E*F
Yellow Egg, EF*
Formoso, JF
Satsuma, JF
German Prune, E*F
Italian Prune
(Fellenburg), E*F
Stanley Prune, E*F
Victoria, *

BLACK WALNUT

Thomas, *
Ohio, *
Len Eyck, *
Stabler, *
Horton, *
Heart Nut, *

SWEET CHERRY

Windsor, GS
Black Tartarian, *GS
Seneca, *GS
Bing, S
Yellow Spanish, S
Napoleon, S
Lambert, S
Royal Anne, S
Schmidt Bigereau, S

SOUR CHERRY

Montmorency, *S
Early Richmond, *S
English Morello, *S
Ostheimer Weichsel, Duke

DWARF FRUIT TREES and SEMI-DWARF FRUIT TREES

*are available in the varieties and sizes listed below.
Please specify on your order, if you desire the
Dwarf or Semi-Dwarf to avoid errors.*

Varieties	1 year Each (whips)	2 year Each (partly branched)	3 year Each (well branched)	5-6 year specimen Each (extra well branched)
Apple	\$2.50	\$3.75	\$5.00	\$15.00
Crab Apple	-----	-----	5.00	15.00
Pear	2.50	3.75	5.00	15.00
Plum	2.50	3.75	5.00	15.00
Quince	2.50	3.75	5.00	15.00
Peach	2.50	3.75	5.00	-----
Nectarine	2.50	3.75	-----	-----
Apricot	2.50	3.75	5.00	-----
Sweet Cherry	2.50	3.75	5.00	-----
Sour Cherry	2.50	3.75	5.00	-----
Filbert-Nut	2.50	3.75	5.00	-----
Standard Walnut	2.50	3.75	5.00	15.00

(in Semi-Dwarf only)



Dwarf Burbank Plum Tree, 3 Year Old, in blossom



Photo taken on the grounds of Mrs. Williams, Port Chester, N. Y. Dwarf Winesap Apple tree, 5 Year Old, has borne 86 large luscious apples this year. This tree was planted as a 2 Yr. Old—picture taken 3 yrs. after planting.



Dwarf Clapp's Favorite Pear Tree, 5 Yr. Old, in blossom

CUSTOMERS LIKE OUR DWARF FRUIT TREES

Extracts from a few of many letters received daily:

Dear Sir:

The trees arrived March 27th, 1945 and were planted immediately. Much water was used. The trees are very fine.

I hope to order more next year.

Very truly yours,

MRS. B. W. WHITFIELD, Murphy, North Carolina

Dear Mr. Leuthardt:

I enclose order for dwarf trees for Mr. Davis Wallbridge of Dewitt, New York. I attach check for \$162.00.

Your trees were so superior to any I have had that it was a pleasure to recommend them to Mr. Wallbridge.

Thanks very much for your promptness in replying.

Very truly yours,

My dear sir:

A. W. JOHNSTON, Syracuse, N. Y.

The trees arrived in perfect condition and I planted them at once. They were fine ones and the grape vines the finest I ever purchased from anyone.

I have just checked over my lot of choice Dwarf trees and every one looks to have come through perfect including the ones you sent me last Fall.

A friend of mine, Mr. Monroe said he was going to order some of you. We will be doing more business from time to time and many thanks for the choice trees you sent me.

Sincerely yours,

JOHN D. RAKE, Monroe, New York

Gentlemen:

We also wish to say at this time that we have been receiving very fine material from you which, in every instance, has pleased the customer. Your trees are not only very symmetrical and always clean, but seem to grow well after being planted.

Truly yours,

I. E. ILGENFRITZ SONS, Co., Monroe, Michigan

Dear Mr. Leuthardt:

You've shipped me four trees, that are trees and you've filled your guarantee of satisfaction. Nature does not make trees in exact duplicate, all of these are much better than any of the earlier shipment that I received, but two are show pieces, real beauties, one has a shape that puts various catalogues I've seen, to shame. Two are absolute beauties. One, I would not sell for \$5,000.

Now I feel as if I can invite some friends of mine that bought the \$2.50 stuff sold elsewhere over to my little group to see some real trees! The ten that I now have may be all that I'll want for a while, but when I buy more they will come from Leuthardt.

Very truly yours,

E. W. HOLDEN, Pittsfield, Mass.

Dear Mr. Leuthardt:

The four Dwarf apple trees were received last week in good condition. They were all splendid trees in every respect.

I planted the trees two days after receipt, thereof following directions carefully. I believe they will all come along nicely.

Your trees were all that you claimed for them, and I am looking forward to securing more trees possibly on a small scale in the near future.

Very truly yours,

W. E. KAVENAUGH, Windsor, Vermont

Dear Mr. Leuthardt:

Over the past few years, I have purchased quite a few trees from you. In addition to this, a number of my friends, on seeing mine, have asked me to order some of them for their gardens and homes.

I just want to tell you at this time that I have been very well pleased with all of the trees that I have bought. They are all doing very well and have been strong, healthy and well rooted trees from the start.

I shall continue to remain a "Leuthardt" booster and shall undoubtedly continue to order more of your trees from time to time.

Sincerely yours,

F. W. WRIGHT, JR., Haworth, N. J.

"Espaliers"

THE TRELLIS-TRAINED FRUIT TREES
ARE DECORATIVE AND FRUITFUL

"A Luxury of the Wealthy Now Within Reach of All"

Dwarf Espalier Fruit Trees were devised by clever European Horticulturists to make the most of limited space otherwise wasted. For centuries, the Old World castles and estates have relied on Espalier trees for decoration, symmetry and utility. These intriguing Espalier forms are the result of traditional Old World Charms combined with modern American needs and uses. It remained for Henry Leuthardt, America's Pioneer Espalier Specialist, whose family has been training Espaliers for generations in Switzerland, to develop these exquisite trees suitable for this country's soil and conditions.

At the age of 13, he served his apprenticeship under Old World master gardeners. He studied the science of botany at European universities and was awarded a medal by the University of Strasbourg for proficiency in the art of training Espalier fruit trees.

Coming to the United States, Henry Leuthardt devoted his life work in growing and training Espaliers. He has won honorary mention and awards at various Horticultural shows throughout the country. Some of his plantings have been viewed at Gardens on Parade, New York World's Fair; George Washington's Home, Mount Vernon, Virginia; The Metropolitan Museum of Art, Fort Tyron Park, New York; and Gardens of the Nations, Radio City, New York City.

Below Are Some of the Medals awarded Henry Leuthardt for perfection in the art of training Espalier Fruit Trees.



Genuine Espalier Trained Fruit Trees

The culture of Espaliers is an old art based on the application of a principle of plant growth, known as sap flow control. Hence, the choice of understock is important, for the fruit trees' later training.

A dwarfing rootstock that of a type with a small root system is chosen. This limits the size of the tree that is grafted on it, slows its growth and encourages early bearing.

The forms into which Espaliers are fashioned are determined by the natural growth habit of the kind of fruit tree, even of the particular variety.

Training, like the effect of rootstock, further slows sap flow and gives better distribution.

We grow and train into Espalier forms only those varieties, which, after years of experimentation, have given us the most satisfactory results. The average Espalier we offer for sale has been in training for a period of six years or more—and it is the result of faithful care and a more perfect knowledge of the art of pruning. Only the finest rootstock is used and as each tree is trained on sound biological laws, it is guaranteed to keep its shape.

What is the meaning of *Palmette Verrier*?

Palmette is used in French since it reflects the shape of a palm leaf, hence it comes as close to describe the shape of the tree.

Verrier was a Professor of Botany and Horticulture in the Sorbonne, a famous University in Paris. During the middle of the nineteenth century, he did evolve the forms such as these in four, six, eight and more arms as he rightly claimed that the upright training contributed immensely to symmetry and production. From then on, *Palmette Verrier* is used only for trees whose symmetrical shape is absolute and have definitely no middle branch that issues directly from the main trunk.

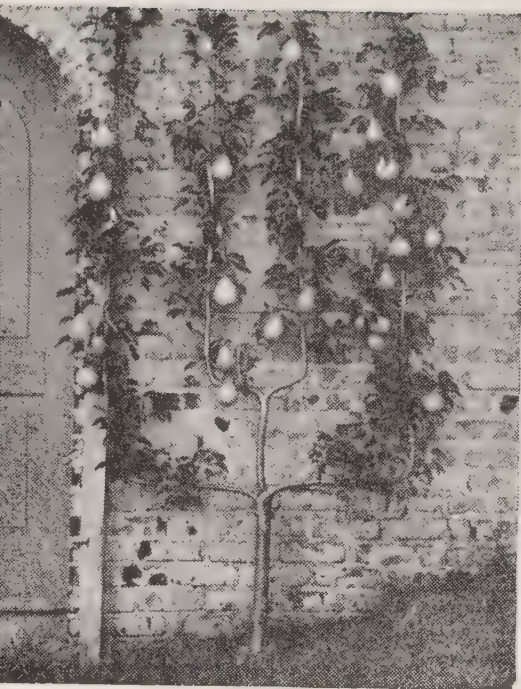
There is also the *Palmette Goucher Espalier*. This form may be distinguished from the *Verrier* as it has the form of a U and trained only in two-fold, three-fold and four-fold Espaliers.

Leuthardt offers a wider variety of forms suitable for many purposes. The slight difference in price is more than compensated for by the better quality and symmetrical shaped trees we offer—no better stock of Espalier trees can be found anywhere in the world.



Above—A Single U Form Espalier

Apple, Pear, Plum	15 in. wide
Peach, Nectarine, Apricot	24 in. wide
5 - 7 ft. high	\$8.00 ea.



Four Armed Palmetter Verrier

Apple, Pear, Plum4 ft. wide
5 to 8 ft. high\$15.00 ea.



Six Armed Palmette Verrier Espalier

Apple, Pear, Plum6 ft. wide
5 to 6 ft. high\$25.00 ea.



Triple U Form Espalier

Pear, Plum6 ft. wide
5 to 6 ft. high\$25.00 ea.



Individual Belgian Fence Espalier

Varieties—Apple, Pear, Plum\$6.00 ea.



The Belgian Espalier Fence

This is one of the many interesting and attractive patterns made with Espaliers. Always exquisitely beautiful. It takes 5 trees to obtain a diagonal lattice effect. Each tree is planted 2 feet apart. A Belgian Fence may be extended any desired length. Available in apple, pear and plum. Individual trees, 6 feet high, \$6.00 each.



Single Horizontal Cordon

Apple, Pear, Plum18 in. high
6 to 8 ft. long\$6.00 ea.



Double Horizontal Cordon

Apple, Pear, Plum3 to 3½ ft. high
6 to 8 ft. long\$12.00 ea.



Triple Horizontal Cordon

Apple, Pear, Plum4 to 5 ft. high
6 to 8 ft. long\$18.00 ea.

Four Tiered Horizontal Cordon

Apple, Pear, Plum.....5 to 6 ft. high
7 to 10 ft. long.....\$24.00 ea.



Fan Shaped Espalier

Peach, Nectarine, Apricot, Plum, Apple, Pear
6 ft. spread, 5 ft. high.....\$15.00 ea.



The Single Vertical Cordon, shown at the left, is the simplest Espalier form. It is usually planted in combination with more elaborate forms, especially at the ends of a planting. It may also be planted in rows along a wall, as a screen, along leaders, against house corners, etc. Because of their small size, the trees can be planted as close as one foot. A row of Single Cordons makes an interesting division line between the vegetable and the fruit garden. Cordons are inexpensive and can be freely used in the average home garden.

**SINGLE VERTICAL
CORDON DWARF TREE**

Apple—Pear—Plum
4 to 6 ft. high—\$5.00 ea.



Part of the Kitchen Garden at the George Washington Home, Mt. Vernon, Virginia; displaying many unusual and fascinating Espalier patterns similar to the ones he used, planted and restored by Henry Leuthardt in 1936. Visit and see for yourself, our lovely Espaliers at their best.



Photo taken on Mrs. Arthur Adams Estate, Charles River Village, Mass.

A view of a Garden House on the lawn. A metal frame 9 feet high and 10 feet in diameter, support 7, Four Armed Espalier Apple trees. These trained trees wall and roof this arbor.

Benches placed inside this summer house, make it a delightful—charmingly shady place to rest or entertain.

Bright and fragrant in spring — offering luscious fruit within easy reach in fall — cool and green all season long. (Write for details)



Henry Leuthardt tending an 8-Armed Palmette in the nursery

USES OF ESPALIER FRUIT TREES

Espalier Fruit Trees trained in many different patterns adapt themselves to a variety of places. You may—

- (1) Plant Espaliers below windows—between windows.
- (2) Set them against sides of buildings, walls, fences, trellises, etc.
- (3) Train them on leaders at the corner of buildings
- (4) Use these trees in the open, edge paths, drive-ways.
- (5) As a hedge or screen to set off parts of the garden, or as a border line between properties.
- (6) To obtain a focal point of interest in a rock garden.
- (7) Form an effective arbor over a walk.
- (8) Make an Espalier Garden House on the lawn.
- (9) For planting in Greenhouses—on the trellis—tub planting on penthouse roofs.
- (10) Perk up dull corners—hide unsightly objects from view, etc.

The Horizontal forms may be used along walks, drives, to cover low or medium height walls, below windows, as a hedge or border line, etc.

The Upright forms are adaptable to high walls, fences, buildings, screening, for arbor planting, etc.

The Fan Shaped is suggested for broad wall areas, hedge or screening planting.

Espaliers—Make Ideal Holiday Gifts

Plants are always appropriate and pleasing gifts, because they reflect thought on the part of the Giver. *"Neither Gift nor Giver Forgotten."*

Espaliers Completely Trained Easy to Care For

All our varieties are carefully selected for their hardiness and suitability for Espalier training. They will thrive well in any exposure whether east, west, south or north, providing they receive five hours of daily sun. Espalier fruit trees require even less care than other fruit trees. The difficult part, the training of Espaliers has already been done by us, and no previous knowledge or experience is necessary for you to continue growing them successfully on your grounds. The trees are easy to spray and the fruit can be readily harvested.

A tree that has been espaliered attains its permanent pattern and the owner should refrain bending the main structure into his own design. Vertical type Espaliers will not expand in spread, but will continue to grow in height.

Horizontal types will continue their spread, but making additional height depends upon the nature of the tree.

Fan Shaped Espaliers will grow in spread and height, but desirable size may be obtained by pruning.

Attract Attention Throughout Long Season

These distinctive fruit trees are a never-failing source of interest from the time the pretty blossoms appear in the Spring—until the richly colored fruit ripens. In the winter, even then, they are extremely decorative, with their lace-like shapely structure.

Espaliers A Dividend Paying Investment

Aside from their beauty and charm, Espalier fruit trees are a good investment. Like vines, they take up practically no room, thus leaving the precious ground space available for flowers and vegetables. In Europe, where they have been grown for centuries, the primary object is fruit rather than display. They yield unusually excellent, large sized fruit, and of much better flavor than ordinary fruit, due to the greater sun exposure penetrating through all the branches and because the trees are grafted onto the proper understock. As the trees grow in size, the fruit crops gradually increase, and pay their owners annual dividends in fruit of the highest quality.

CUSTOMERS LIKE OUR ESPALIERS

Extracts from a few of many letters received daily:

Dear Mr. Leuthardt:

We received the Six Armed Espalier and it arrived in excellent condition. We certainly are very much pleased with it.

In answer to your letter of May 3rd, we wish that you book the additional order attached for fall delivery.

Very truly yours,

MR. E. C. GEISER, Dover Ohio

Gentlemen:

The Espalier trees you sent me this Spring came through fine.

Is it too late to send others now? It is hard to tell from here how advanced the season up there is. If you can send others, I should like three, Four Armed Palmette Espalier Pear trees. Kindly let me know what to expect about these?

Very truly yours,

ARTHUR BERGER, Landscape Architect
Dallas, Texas

My dear Mr. Leuthardt:

I received the two Espalier Pear trees on April 12th that you shipped me by express on April 9th, and am very much pleased with them as I have been with all the nursery stock you sent me.

The 3 days in passage was quite a difference from the 3 weeks it took last December for the fruit trees you shipped by express to reach me. However, the trees you shipped me last December were dormant and the 3 weeks in a hot baggage car did not seem to do them any harm as they are all alive and flourishing.

The pears have quite a number of pears on them. The other trees had blossoms but it is a little early to tell how much fruit there will be but I did not count on much the first year after planting, especially as I did not get them in nearly as early as I would have liked. I feel sure they will do well next year.

My experiences in dealing with you have been very pleasant. I appreciate the courtesy and personal attention you have given my small orders and I feel sure that the growth of your Nursery is built on reliability and courtesy to all customers small as well as large. I am glad I have dealt with you.

Very sincerely yours,

(COL.) CLIFFORD CABELL EARLY, Atlanta, Georgia

Dear Mr. Leuthardt:

I must say again how happy I am about the beautiful Belgian Fence and that charming Garden House—have never seen anything quite so pretty, and there is nothing on my place that I like so much—I shall be very proud to show it off, and hope that it may bring you many orders. I shall be glad to do my best at all times.

Now I look forward to the Spring more than ever before—I'm always hoping someday you will come up here to see my trees—I feel very humble about them, but I love them dearly and would be proud to show them to you.

Very sincerely,

MARGERY L. ADAMS, Charles Rivers Village, Mass.

Dear Mr. Leuthardt:

We thought you might be interested in seeing how well your trees have done under fairly adverse conditions, and we are sending you pictures of our terrace. The closeup is of the pear tree in bloom. It now has pears on it. The Apple tree which was planted this year bloomed beautifully.

As you can see, the eaves of the house extend so far that only a driving rain can reach the trees, so they have to be watered artificially all the time. The exposure is east.

I'm giving one of your folders to a woman from Battle Creek, Michigan. She was enchanted with the trees and asked for your address. Thank you for sending us such fine trees.

Yours truly

MARGARET F. TRAHERN, Clarksville, Tennessee



PHOTO BY JOHN GASS OF SCARSDALE, N. Y.

Dwarf understock when true has such a deciding effect on the formation of the bearing wood. As a rule, the building of a bearing bud takes from two to three years. Here is the story of one year on dwarf stocks.

The scion wood on these grafts are one year old taken from dwarf McIntoshes' grafted on Malling No. IX, and grafted onto Malling No. VII rootstock.

These grafts are six weeks old and show the percentage in bloom. We furnished 2000 plants to a scientific institution. The purpose of the experiment was other than the testing of bearing buds—but these qualities came into relief while probing for other merits.



PHOTO BY JOHN GASS OF SCARSDALE, N. Y.

This is a close up of a single graft. The young shoot has McIntosh scion in bloom taken from tree grafted on Malling IX—the lower part is clonal cutting taken from Malling No. VII.

SMALL FRUIT

BLUEBERRY

The Blueberry—a beautiful plant—Plant them and give them a chance. In a few years they will be the queens of your home garden. Grow them for their beauty; grow them for their wonderful crops of fine fruit. The bush, the only one that pays its way yearly with a minimum of attention. So beautiful are these new shrubs all through the year that one wonders how any other bush can be compared with them. In the spring, they are veritable drift of creamy bloom, which is followed in midsummer by clusters and spikes of great berries of the bluest blue, unmatched for their luscious flavor. With the approach of fall, their leaves take on handsome colors of rich carmine and coppery reds and coppery gold that lasts long after all other shrubs have been denuded of their foliage. Finally, when the garden lies half buried in snow, a clump of blueberry bushes with their pretty red and gold twigs will present a most intriguing patch of misty color just when it is most needed.

Blueberry plants are long lived and will probably outlive us all. The cultivated berry will thrive almost anywhere in our home grounds if treated like other shrubs and bushes, or fruit trees. All varieties are firm, very blue, meaty and have been known to keep for at least three weeks without sweating or withering.

	Each	3 to 10 Plants Each
2 Year—6 to 12"	\$1.40	\$1.15
2 Year—12 to 18"	1.85	1.55
3 Year—18 to 24"	2.75	2.35

(More than 10 plants, write for special quotations.)

Cabot—early bearer—grows to a height of 4½ feet.

Pioneer—ripens shortly after Cabot. Grows 5 feet.

Rubel—later bearer—attains a height of 7 feet if allowed its own way.

Rancocas—Concord—Burlington.

RASPBERRY

(Strong Rooted, 2 Year No. 1 Plants)

Raspberries—coming immediately after the strawberries, they are the ideal summer fruit. They give big returns of fruit with very little effort.

30c each—10 for \$2.50—25 for \$5.00

Cumberland, Midseason, Black
Taylor, Midseason, New Red
Latham, Midseason, Brilliant Red
Newburgh, Midseason, Red
Sunrise, Earliest Red Berry
Chief, Midseason, Red
Indian Summer, Everbearing Red
St. Regis, Everbearing Red

CURRENTS

Are a wonderful investment—They fruit at a time when other berries are gone—They make extra fine jams and preserves. No garden should be without them.

2 Year Old Size—\$1.00 each

Fays Prolific—Large red currant, productive and hardy.

Red Lake—Large, sweetest, finest red currant. Extra Hardy.

Wilder—Large, bright red berry, very productive. Strong grower.

GRAPE VINES

(Strong Rooted, 2 Year No. 1 Vines)

70c each—3 for \$1.80—10 for \$5.00

Fredonia, Real Early, Black

Delaware, Early, Red

Portland, Earliest White Grape

Moore's Early, Deep Black

Caco, Early, Rich Red Wine Grape

Catawba, Late, Dark Copper

Concord, Midseason, Blue

Agawam, Late, Red

Golden Muscat, Late, few seeds, \$1.50 each.

Concord Seedless, late, \$1.50 each.

STANDARD STRAWBERRIES (Once Transplanted Heavy Plants)

25 Plants	50 Plants	100 Plants
\$1.25	\$2.00	\$3.30
Blakemore, Early		
Dorsett, Early		
Fairfax, Early		
Premier, Early		
Catskill, Midseason		
Starbright, Midseason		
Senator Dunlay, Midseason		
Chesapeake, Late		
Fairpeake, Late		
Red Star, Late		

EVERBEARING STRAWBERRIES

25 Plants	50 Plants	100 Plants
\$1.95	\$3.25	\$5.20
Gem—Mastadon		
2.60	4.35	7.00
Streamliner, Everlasting		

GOOSEBERRIES—2 Year

Each \$1.35

Red Jacket, Pale Green

Downing, Red

BLACKBERRIES—2 Year

3 0c Each—10 for \$1.80

Blowers—Alfred—Eldorado

THORNLESS BOYSENBERRY—1 Year

35c Each—10 for \$2.50

DEWBERRIES

18c Each—25 for \$3.25

Lucretia, Black, Late

ATTENTION!

Care of Fruit Trees on Arrival Dwarfs and Espaliers

Trees are frequently ruined by lack of care, of bad managing after they fall into the hands of the purchaser. We have known them to lie for days tied up in a bundle just as received from the nursery, or exposed to sun and wind and then set out. With such treatment they cannot be expected to live when one hour's time would have them buried in the ground and placed them beyond danger. 95% of trees fail thru improper planting.

Plant trees immediately upon arrival. Unpack trees without exposing the roots to cold air, winds or sun. The roots should be covered with a wet blanket or straw until they reach their proper placing. If the roots become dried from too long exposure, straw should be spread on the ground and the trees laid upon it, then cover the roots and tops with straw, and the whole well watered. In this condition, they should remain for 48 hours when they will be found fresh as they were in the nursery.

If trees are frozen when received, don't unwrap the bale, but place them in the cellar or some cool, dark room that is frost free and let them remain until all frost is drawn out, usually from 36-48 hours. If no cellar or frost proof room, bury the bundle in sawdust or dirt until thawed. The point is to get the frost entirely out without the sudden exposure of shock to the heat, light and air. Even if frozen solid, the stock will not be injured if handled in this manner.

THE HEELING-IN TRENCH—If unable to plant trees when received because of weather or unpreparedness, dig a trench deep enough to take roots comfortably and located where the ground is moist, well drained and pulverized. Open the bundle so that you can put the trees or plants in the trench one at a time; lean the bodies of the trees over against the bank of earth with the tops pointing to the southwest. Shovel fine fresh earth over and around the roots, then fill up the trench until the roots and a few inches of body are covered. Now pack the earth well by tamping lightly with back of shovel to avoid air pockets. Then throw on a few shovels of loose earth to prevent baking. Let them remain until the hole is ready and remove one by one as they are needed.

The trees will keep perfectly for about a month if these directions are followed.

SOIL PREPARATION—Cultivate thoroughly and deeply, raking or harrowing the soil fine to facilitate planting. Dig the hole deeper and larger than necessary to admit the entire root system in their natural position without crowding or cramping the roots. Loosen the soil at the bottom of the hole to provide aeration, good drainage, some plant food and a more adaptable condition for root development. If this is neglected, the roots are soon surrounded by a strong wall and you cannot expect them to live very well.

Straw in the hole leaves air spaces and roots dry out.

No manure of any kind should be put in the hole in direct contact with the roots; it is injurious, causing burings of the roots, a rank growth, making the tree tender and consequently short lived.

Give the tree a chance to forage for itself and when it has taken good anchorage on its own, it will more easily weather adverse storms than if you had stimulated a dense and short root system by feeding the tree in the planting hole. But, if the soil is not rich enough to give the tree a good start, feeding is necessary and will do no harm.

Ordinary garden soil is sufficient for the good growth of fruit trees. Over-rich soil causes a profuse growth and impairs the bearing of a fruit tree, thus fertilizer should be avoided.

If the tree is planted in a heavy, clay, hard-pan, subsoil, which stops moisture penetrating from rainfalls and the free entry of air, the application of a compost is necessary. It is advisable to make the hole larger and refill it with horticultural peat moss or well-rotted cow manure mixed with soil as it has proven to be a great benefit.

ACID SOIL—Use lime. Lime is not a fertilizer, but a rock that contains no chemicals, and is of benefit to the soil through its physical and chemical effects. Should be applied once a year to land which is inclined to become sour. The most practical type of agricultural lime to use is raw ground limestone, and air-slacked lime. Limestone may be bought, is safe to use and is effective. Lime is a safe investment and should be added to the soil whether sweet or sour because it will improve the flavor and quality of the fruit.

SWEET SOIL may be changed to acid soil by adding sulphate of potash or super-phosphate to the soil. Often the addition of leafmold, peat or saw dust, all of which possess acid-producing effect, is all that is required.

CLAY or SANDY SOIL add cow manure.

PLANTING—Both roots and top should be pruned at time of planting—the neglect of this causes the loss of an immense number of trees. When taken from the nursery, the roots are more or less mutilated, therefore the balance of the tree must be restored by cutting off a portion of the side and top branches.

First, before the tree is set in the ground, smoothen the broken or bruised end of the root with a sharp knife in a slanting direction, on the underside; this will cause the wound to heal over readily, by throwing out plenty of fibrous roots at the end. Do as little root pruning as possible at planting time. The largest possible absorbing area is needed to get the water and nutrients into the tree so that it will get off to a good start.

Use good top soil for filling in the bottom of the hole and around the roots, where it does most good. The tree should be perpendicular or lean slightly towards the wind; this makes it grow straight. Arrange the roots in their natural position. Then fill in fine mellow soil, working it thoroughly in among all the roots with the hand so that no air pockets remain. The filling soil should be dry rather than wet so that the soil will sift into the crannies. When the roots are barely covered, sprinkle on a half bucket of water to moisten the soil and settle it among the roots. Then fill soil to top and press down the earth around the tree with the foot—then pour a bucket of water to help settle the tree in the ground. But the soil on the surface should be left loose to prevent evaporation. The application of water before the top soil is applied is useful but not always necessary. It is a good idea to leave a slight dish effect to collect water from the spring rains. A covering of coarse manure, straw, marsh, or hay, during the first season will effectually prevent injury from drought and is a benefit at all times. Avoid overwatering as roots will drown. Apply as much water as the ground will absorb and not any more. Water trees once a day during the first week to give the trees a good start if the soil is not frozen.

DEPTH TO PLANT—All fruit trees should be planted with the graft one inch above the surface. The graft is the joining union between the trunk's base and root system. It is easily recognized by its onion-like shape. Some grafts are large, while others are hard to detect. It is of minor importance if you cannot locate the graft. The graft is emphasized to indicate how deep the tree should be planted, since most amateurs bury the trunk and the tree dies. The apple is the only variety whose graft must be planted above the ground level to prevent new roots from developing above the union and destroying the dwarfing influence. If the graft is buried, roots will form above the graft and the tree will develop into its original standard form.

It is a grave mistake to bury the trunk with earth. The tree bark is of such a nature that it requires air, light, etc., but covered with earth, it will split, peel off and fungus diseases and parasites will settle in the cracks, causing the bark to degenerate and impede the natural flow of sap.

MULCHING—Is of vital importance and should never be neglected. The material used should be coarse manure, peat moss or well-aged compost applied when the tree shows signs of tired growth. If a tree is planted in good, well drained soil, and making strong vegetative growth, the tree had a chance to forage for itself and has taken good anchorage on its own and little or no benefit will result from adding mulch in a planting hole.

The purpose of any mulch is to prevent moisture loss by excessive evaporation and to bring about more constant soil temperatures, but will not stop weeds from growing. Straw, grass, hay or sawdust make the best mulch. The gradual decomposition of the material adds organic matter to the soil layer where many of the feeding roots are located. Spread around the tree for a space of from 2 to 3 feet and 2 to 3 inches deep. This mulch should be placed around the tree about December 1st and should be left around the tree all summer.

The object of mulching in early winter is to keep the ground from thawing around the roots until late in spring, as more trees die from alternate freezing and thawing of roots than from all other causes, and the mulch will carry the roots through in perfect condition, if enough is kept on.

AFTER CULTURE—Cultivate well in the early part of the summer and in the month of October. The principle of cultivation is that the loose and pulverized soil on the surface prevents the evaporation of moisture and keeps weeds in check. It is important to attend annually to surface drainage.

Wood ashes may be applied if hard-pan soil is the problem, otherwise not necessary.

Bone dust, and plaster are excellent manure and stimulant for trees when used on the surface.

Cow manure is unquestionably the best fertilizer for all kinds of fruit trees, but they will be benefited by the liberal use of most any well-rotted manure, and planters should bear in mind that it pays both in the quality of the fruit to fertilize fruit trees.

Compost is a mixed material consisting mainly of decayed organic material—manure, leaves, peat, etc.—in which mineral soil is merely incidental.

The only safe way to apply fertilizer to the tree after planted is to rake them into the ground—not in actual intimate contact with the roots. When so applied, the moisture in the ground dissolves them and makes dilute solutions which feed the tree instead of damaging the roots.

Fertilizing in the fall acts as a winter mulch and enriches the soil for the next season's showing.

WATERING—Avoid watering fruit trees for too much water harms the root system and prevents the trees coming into bearing. Fruit trees seldom require watering, except in very dry weather, then artificial watering is advised. If a drought occurs, trees bearing fruit must be watered. One good watering once a week at night and repeated the next morning, is far better than ten times as often if improperly done. More trees are killed than saved by injudicious watering. The right way is to draw away a little of the soil from the side of the tree, and allow all the water that the soil will absorb to soak in, then replace the dry soil. Keep the surface soil always loose to avoid crusts. Avoid water sprouts and fountains within reach of tree roots to eliminate moist soils.

THINNING OUT THE FRUIT—Many varieties of apples, pears, peaches, plums, nectarines, and apricots are naturally so productive that they set more fruit than the tree can properly mature. When this occurs, it is highly important to pick off the

fruit. As soon as the fruit is fairly set, as a general rule, pick off the fruit with a spacing of 4 to 5 inches between the fruit. Very young trees should not be allowed to bear too heavily. When a tree is overloaded with fruit, it requires thinning to obtain fruit of good size and quality, and to keep the tree from going into the undesirable biennial habit.

WINTER CARE—Rabbits, Cats, Rodents and their control:

1. To protect a tree in winter from depredators, it would be advisable to wrap several thicknesses of newspapers or tar paper around the trunk and lower branches of the tree in the fall. The paper should not be tied too tightly and it should be removed in the spring.

2. Another method to prevent damage by animals is to treat the trunk with a repellent solution. The copper Soap Rodent Repellent is a dark green paint-like material which can easily be applied to a tree or shrub, giving a repellent protective coating. Has fine lasting qualities, and will remain on trees throughout the winter and spring. This is endorsed and used by the Michigan State College. You may obtain this solution from M. J. Beck, 510 N. Cedar Street, Lansing, Michigan.

THE PEACH BORER

This is one of the most destructive pests attacking peach, apricot, nectarine, cherry and plum trees.

When masses of gum-like substance mixed with sawdust-like refuse appears at or near the base of the tree reveals the presence of peach borer infestation. The gum is the bleeding of the tree and if the borers are not eliminated, they girdle under the bark and the tree will eventually die. The injury itself may extend about 3 to 4 inches above the ground line and about 8 inches above the ground line along the main roots.

Around July 1st until early August, the adult moth deposits a large number of eggs on the trunks of the trees or in the ground near the trees. The caterpillar is a yellowish white color with a dark brown head and about 1½ inches long full grown. The young borers that hatch, tunnel through the bark into the growing tissues of the tree. Watch for the first signs of gum every year to prevent complications.

To eradicate them, take a piece of wire or a knife and follow the channel until they are located. Most likely, there are more than one—look carefully. If the wound should be a large one, we suggest painting it to avoid infections.

CONTROL THE BORER (Two Methods)

1. Dig around the base of the trunk for about 2 inches and then cover this with some animal fat or some other fatty substance up about 10 inches, this forming a coat and preventing the borer from getting into the tree. This should be done during the month of August. The purpose of using some animal fat is that it will not injure the bark of the tree or the tree itself.

2. Remove weed growth around the base of the tree and level the soil. Next, paradichlorobenzene crystals are spread in a circle about 1 inch from the base of the infested tree. Finally, loose soil is used to cover crystals and is mounded up and tamped firm around the tree with shovel.

Use a Harmone Spray to prevent preharvest drop—control wind-fall losses—and get better color and size fruit.

Use paradichlorobenzene for the control of peach borers.

Materials for the Harmone Spray and borer control may be obtained from the following manufacturers:

Dow Chemical Company, Midland, Michigan.

General Chemical Co., 40 Rector Street, New York City, N. Y.

E. I. du Pont de Nemours & Co., Grasselli Chemicals Dept.,
Wilmington 98, Delaware.

FRUIT SPRAY CHART

SPRAYING—The amateur home gardener will find that one or more of the recently introduced preparations now on the market are practical to use. Nearly every type necessary is sold in

convenient packages sufficiently large to keep the garden well sprayed for the entire season. The directions for use are plainly marked on all packages. To produce the highest results, spraying is of vital importance.

There are two distinct groups of insects—those known as the chewing or biting, and the sucking. The chewing insects are beetles, and worms that damage plants by eating holes into the leaves, unopened buds, and flower petals. To combat this type it is necessary to use some form of stomach poison spray, such as arsenate of lead, paris green or black arrow.

Sucking insects are those that do damage by sucking nourishment from the leaves, causing them to curl, wither and eventually drop. Some form of contact spray is necessary. For these pests, there are several forms of nicotine solutions commonly used, such as black leaf 40, black arrow dust, lime sulphur wash.

Diseases such as blight, fungus, rot, scab, etc., are combatted mostly by the use of a fungicide either Bordeaux Mixture or Lime Sulphur.

The most important and most effective winter spray is Lime Sulphur Spray. It will act as a beneficial cleanser for almost all trees. Used when the trees are fully dormant, it is easily applied, and fully effectual if done at all carefully, because no foliage obstructs a thorough covering of all parts of the branches and individual buds. It is the only effective spray for the eradication of blister mite on pears, the curl disease on peaches and all the various scale insects affecting our different fruit trees.

YOUR SPECIAL ATTENTION REQUESTED PLEASE

SCALE plays a very treacherous part on fruit trees, including Espalier Fruit trees. Through our many years of experimenting, we discovered scale to be the major cause for the death of 90% of all fruit trees.

It is easily recognized by its round or oyster-shaped shells on the bark or branches which spreads and smothers the breathing pores upon which the tree depends to inhale during the winter months. This scale protects the small live eggs beneath it which survive throughout the winter by sucking the sap from the tree. The sap, which is the blood of the tree, when withdrawn, eventually kills the tree.

Scale is very injurious to the life of fruit trees, and we strongly urge you to rid of scale at first appearance. Scale forms only during the growing season. It is caused by neighboring plants such as ivy, pachysandra, evonymous, lilac and other shrubs which are great carriers of scale. Although scale does total damage to a tree, amateurs will find it very easy to overcome.

If signs of scale appear on a tree that is leafed out, the most urgent thing to do is to control its spread by ridding of the scale which protects the eggs over the winter period, and since no scale will develop over winter, these eggs will not be able to protect themselves and they will be checked. To destroy them, take a piece of burlap and rub off the scale as though you were giving the branches a shoe shine. Be sure to get between the twigs, crotches, and angles of the limbs where scale is most dangerous to the welfare of the tree. If you find the burlap difficult to use at certain places, then use a tooth brush with firm or stiff bristles. This procedure will eradicate the scale but will not kill the eggs entirely.

Then, in the spring, to kill all the eggs, use a Lime Sulphur Spray. This should be applied just before vegetation starts, to be effective. Lime sulphur should be applied on a clear sunny day when there is no danger of freezing. Lime sulphur should not be applied on a freezing day because it will freeze to the bark and will not kill the eggs alone, but also injures the bark. To be guided accordingly, apply the spray on a mild day when the sun will dry it quickly. This is the best spray for scale.

Scale if not checked develops very rapidly and in a short time covers the entire area of the tree. Hence, it is vitally important to guard your trees against scale. Please don't ignore our warning, if you expect fine, healthy fruit bearing trees.

SPRAY SCHEDULE FOR SMALL HOME ORCHARD

(Prepared by Dr. Albert Hartzell and Dr. S. E. A. McCallan of the Boyce Thompson Institute for Plant Research, Inc., Yonkers, N. Y.)

APPLE

Dormant Spray

(The treatment is made after the buds have begun to swell, but before they show green at the tips.)

Material: Oil emulsion or miscible oil.

Control: Scale.

Delayed Dormant Spray

(When the leaves of the blossom buds are out about $\frac{1}{4}$ to $\frac{1}{2}$ inch.)

Material: 2 gal. lime-sulphur.

3 lb. hydrated lime.

1 pint nicotine sulphate.

Water to make 100 gallons.

Control: Scab, Aphids, Red Bug, Bud Moth.

Pre-blossom Spray

(Before the blossom buds open.)

Material: 2 gal. lime sulphur.

3 lb. hydrated lime

3 lb. lead arsenate.

Water to make 100 gallons.

Control: Scab - Leaf roller.

Calyx Spray

(When 75% of the petals have fallen.)

Material: 5 lb. wettable sulphur. *

3 lb. hydrated lime.

3 lb. lead arsenate.

1 pt. nicotine sulphate.

Water to make 100 gallons.

Control: Codling Moth, Scab, Aphids, Fruit blotch.

Post Calyx Spray

(Ten days after calyx **)

Material: 5 lb. wetted sulphur *

3 lb. hydrated lime.

3 lb. lead arsenate.

Water to make 100 gallons.

Control: Curculio, Codling Moth, Aphids, Scab, Black Rot, Bitter Rot.

First Apple Maggot or second Codling Moth Cover Spray.

6 weeks after calyx about June 25 to July 1.

Material: Repeat Post Calyx Spray.

Control: Apple Maggot, Codling Moth, Scab.

Second Apple Maggot or third Codling Moth Cover Spray

Not later than July 15th.

Material: Repeat Post Calyx Spray.

Control: Apple Maggot, Codling Moth, Scab.

PEAR +

Dormant Spray

(Early in the spring when the flies appear on the twigs and are ready to lay eggs and the buds are not yet showing green.)

Material: Lubricating oil emulsion diluted to contain 3% of actual oil.

Control: Pear Psylla, Scab, Blister Mite, Scale.

Pre-blossom Spray
(When the blossom buds begin to separate in the cluster.)
Material: 2 gal. lime sulphur ††
Water to make 100 gallons.
Control: Pear Scab, Pear Midge.

Calyx Spray
(When the last of the petals are falling.)
Material: 2 lb. copper sulphate.
10 lb. hydrated lime
3 lb. lead arsenate.
Water to make 100 gallons.
Control: Codling Moth, Leaf Roller, Scab, Green Fruit Worm.

First Nymph Spray †††
(About a week to 10 days after petals have fallen.)
Material: 2 lb. copper sulphate.
10 lb. hydrated lime.
3 lb. lead arsenate.
1 pt. nicotine sulphate.
Water to make 100 gallons.
Control: Pear Psylla, Codling Moth, Curculio.

PEACH, PLUM, CHERRY, NECTARINE, APRICOT SPRAY

Dormant Spray
(In late fall or early spring, before the buds swell.)
Material: Lime Sulphur and water.
Control: San Jose Scale, Leaf Curl, Brown Rot.

Pre-blossom Spray
Material: 2 gal. lime sulphur.
1 pt. nicotine sulphate.
Water to make 100 gallons.
Control: Brown Rot, Aphids.

Petal-fall Spray
Material: 5 lb. wettable sulphur.
3 lb. hydrated lime.
3 lb. lead arsenate.
Water to make 100 gallons.
Control: Leaf Spot, Brown Rot, Plum Curculio.

Shuck Spray
(When the shucks have fallen off young fruit.)
Material: Dusting sulphur ***
Control: Brown Rot, Leaf Spot.

First Fruit Fly
(1 week after Fruit Flies have appeared, when Early Richmond shows tinge of color.)
Material: 5 lb. wettable sulphur *
2 lb. finely ground derris or cube powder.
Water to make 100 gallons.
Control: Cherry Fruit Fly.
(omit in case of all fruit except Cherry.)

Second Fruit Fly
(10 days after first spray.)
Material: Same as for first Fruit Fly Spray.
Control: Cherry Fruit Flies.
(omit in case of all fruit except Cherry.)

* or at manufacturer's directions.

** Early maturing apples should not be sprayed later than the calyx.

*** If Oriental fruit moth is present, spray with DDT.

- + In mixed plantings with apple, if Pear Psylla is not the chief insect pest follow the same general spray schedule as for apple.
- ++ This spray may be omitted, if Pear Scab and Pear Midge are absent.
- +++ This spray may be omitted if Psylla infestation is very light.

Caution— As arsenical sprays are poisonous to humans and warm-blooded animals, care should be taken to prevent it from coming in contact with leafy vegetables in nearby gardens or in any way being ingested.

DDT SPRAY

For certain insects that cause heavy damage to orchards, we have found Gerasol AK 50 a most effective and economical insecticide. It is recommended for grape leafhopper, grape berry moth, rose chafer on grapes, citrus thrips, gypsy moth, tent caterpillars, bud worms, leafrollers on fruit trees, codling moth on walnuts, apples and pears and oriental fruit moth on peaches and quinces. It is a product of the "Originators of DDT Insecticides." For details, also the name of the dealer in your locality, write to the following address:

GEIGY COMPANY, INC.

89 Barclay Street

New York 8, New York

(Please Make Mention of Henry Leuthardt Nursery.)

Pruning at Time of Planting

The great majority of people do not take proper care of their trees after they are set in the ground. This is a great mistake. If a tree does not receive the right kind of care, and enough of it when young, it will never attain a perfect shape and healthy old age. The top of the tree is pruned to restore a near balance between the crown and root area. Pruning gives the tree the proper framework for future development.

When pruning small limbs, make the cut slightly above the bud, in a diagonal position to shed rain. Also, avoid cut too far from bud or too close to bud or on the bud.

PRUNING APPLES - PEARS - PLUMS - APRICOTS

These varieties require little pruning when young. Fruit trees that are pruned too much when young are usually late in coming into bearing. All of the pruning that such plants need is the removal of branches that are too close together for the development of a well-balanced top. A slingshot crotch at the top of the tree should be eliminated to prevent tree from splitting—remove weaker branch, the trunk which continues is shortened by about 1/3. The lateral branches are shortened only where necessary to give the tree a balanced pleasant shape.

Where there is a whorl, remove branches to make a single dominant leader which becomes the new trunk.

The remaining branches are equally spaced up and down and around the trunk. They make wide angles with the trunk which will develop strong crotches.

Also, where there is an oversized branch or bruised branch which gives the tree a one-sided appearance, cut them back to the size of the other branches.

After fruit trees come into bearing, more pruning can be given than in the first years after setting.

PRUNING CHERRY—Of all fruit trees, cherries have the greatest amount of vitality when transplanted. Often, a good percentage of all unpruned cherry trees are killed, but pruning will reduce this great loss considerably. Cherry trees are also subjected to losses if planted at the improper time. Fall is a good time to plant cherry trees. However, we specially prepare our cherry trees to keep the roots well protected from dying during the spring. Avoid planting cherry trees in an advanced stage.

1 Year old cherry trees should be reduced to $\frac{2}{3}$ their size.

2 or 3 Year old cherry trees are pruned by thinning out their lateral or side branches, to prevent crowded head and develop desirable spacing of wide single lateral branches. Cut out lateral branches leaving an average of 4 to 5 branches or laterals on the head of the tree.

If trimming the branches is necessary to give the tree a neat, well-balanced frame, these laterals shall only be shortened in proper proportions using sound judgment, when the buds begin to swell.

PRUNING NUTS - QUINCES

These varieties require no pruning at time of their planting.

PRUNING PEACHES and NECTARINES

There is a general opinion among the public that the peach tree is very short lived and therefore, not worthwhile planting. This is decidedly wrong. The peach and nectarine trees are some of the most rapid growing trees and reach their ultimate height within 4 to 5 years if unchecked.

Now, since peaches and nectarines only grow their fruit on wood that has been grown the previous year, if the tree has not the chance to grow young wood every year, it reaches its natural height within 4 to 5 years, and the tree dies or withers away in such a short time.

It is absolutely essential to prune the trees radically every spring in order to obtain the necessary young wood. If this pruning is applied correctly, a peach tree can live from 18 to 30 years and produce a full crop of large fine fruit every year. Such a pruning is neither complicated nor difficult to apply on dwarf peach or nectarine trees. It takes a courageous man to prune a peach tree properly.

The first step, which is most important, must be applied to all peach and nectarine fruit trees, regardless if they are dwarf or not, at time of planting. A one year old tree must be pruned back radically to about 18 to 24 inches above the graft depending upon whether a low or high trunk is desired.

On 2 or 3 year old trees, no branches should remain that are higher than 2 or 3 feet from the ground. Young side branches that have been grown the previous year, should be reduced from 8 to 15 inches. A peach or nectarine tree, pruned in this manner, will develop for this coming spring, the same amount of branches and length of the branches that were cut away. It is on this young wood that you will grow your fruit buds for the following season.

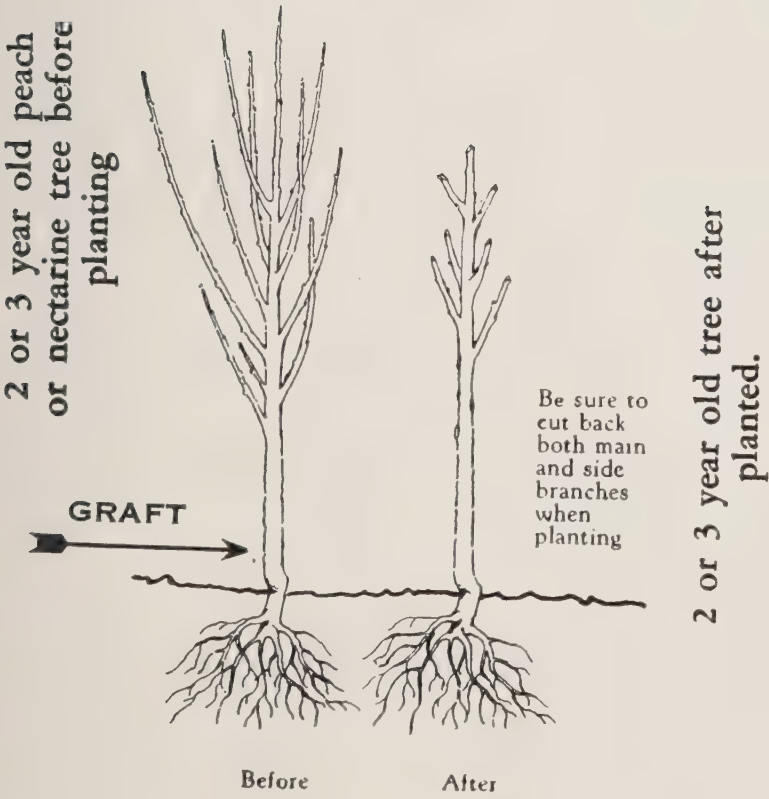
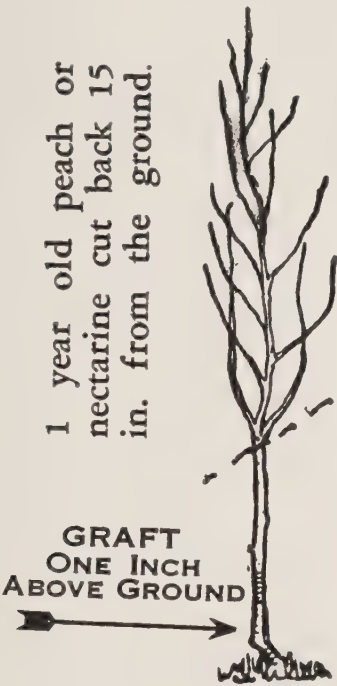
Bearing peach trees are pruned to keep the centers of the trees open and induce new shoots to grow on the main branches. In the pruning process, the branches are shortened by cutting them off above outward-growing branches which will carry on.

Every few years, peach trees should be given heavier pruning by removing sizable inside branches near the tops of the trees. The best time to prune is after the fruit has set and attained the size of a full grown cherry. One cannot harm a peach or nectarine tree, regardless of how severely it is pruned back.

The ground must be well-drained and kept clean and mellow. Give them an occasional dressing of wood ashes. Placed around the body of the tree is sure protection against invasion of the peach borer.

Young trees should be well mulched every spring. If a heavy mulch is placed about the trees after the ground is frozen, it will retard the growth in early spring, and often insure a crop of fruit. Keep the tree in good shape and you will have splendid returns.

Whenever peach and nectarine trees are set out in the fall, the soil should be hilled up around the trunks at planting time to be removed in spring.



After Pruning of Dwarf Fruit Trees

Pruning is an art, definitely associated with confining the trees to limited sizes—adapt them to various patterns—culture them for economic purposes such as fruit or flower production—stimulate and encourage the growth of new branches or young productive spurs—reduce the tendency of alternate bearing—to aid them in returning to a natural habit—etc.

Pruning requires the understanding of a few basic principles, a bit of common sense, sharp tools and the realization that a tree is a living thing that will do its best if given half a chance.

Pruning should consist of thinning out weak wood especially in the top and lower branches; removal of dead, broken and diseased branches; stopping slender outside shoots; cutting out the least desirable of two crossing or closely parallel branches. The amount and type of pruning necessary will vary with the age, rate of growth, type of tree, as well as the former pattern of pruning.

To develop bearing spurs on the branches the most important thing to have in mind when pruning is to expose as much as possible, every part of a branch to the sun. Thinning out is the principle to follow when the crown is too dense. Cutting back is advisable when one branch becomes too long—give the tree a pleasant, symmetrical shape.

Prune back such side branches that will give additional branches if the crown is sparse.

Old trees which are poorly fed may be invigorated by pruning and feeding. In general, give the tree a well-balanced crown by discarding unproportioned branches or shoots. The best time to prune is just before the sap begins to run, early in spring. This pruning develops out their framework, rather than form suckers. Avoid pruning when the trees are frozen to prevent splitting or breaking of branches and fruit spurs.

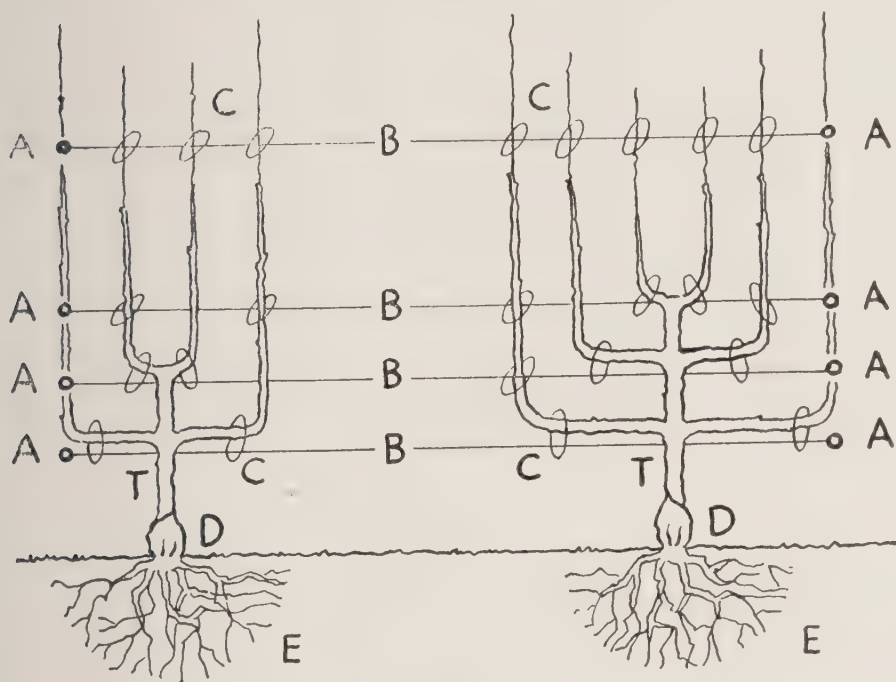
All cuts should be made so there will be a good leaf-bearing tissue beyond the cut. They should be made as closely as possible to the limb or branch to which the part removed is attached to encourage adequate healing. Long stubs never should be left as the wound cannot heal. In tipping back twigs or limbs cut just barely above a side branch or bud so the wound will heal quickly.

Dead stubs collect moisture and set up rot which likely will penetrate live tissues and do damage. We recommend sharp instruments and smooth cuts. Trees which have been properly pruned each season seldom require removal of large limbs. Wounds from 1 to 1½ inches in diameter rarely develop decay. Larger wounds should be painted over with the antiseptic pruning paint to prevent infection.

Care of Espalier Dwarf Trained Fruit Trees

PLANTING - FASTENING — Support of some kind is necessary to protect the branches from severe winter winds and weight of fruit. There are several methods of fastening Espalier Trees. The most popular methods are described below:

One or more Espaliers planted against a wall or fence.



A. Spikes or Flanges set behind end leaders. The first set is placed a few inches below the lowest horizontal branch, so vertical leaders will not have that tendency to spring upward. Use 8" galvanized spikes, allowing 6" to protrude from wall of brick, cement or stone. Use a star drill to avoid wall damage.

Use flanges with nipples on a wooden, clapboard or tile wall, to avoid splitting. Flanges are 6-inch long pipes, 1 inch in diameter, fastened to the wall by means of screws. These may be painted to match the color of the wall.

If several trees are planted, spikes or posts may be set at intervals wherever support is needed.

B. Stretch galvanized number 10 wire horizontally and attach to spikes or posts. Turnbuckles are used when the wire is loose and needs to be tightened for firm planting.

C. Tie main leaders to wires with tarred twine or raffia.

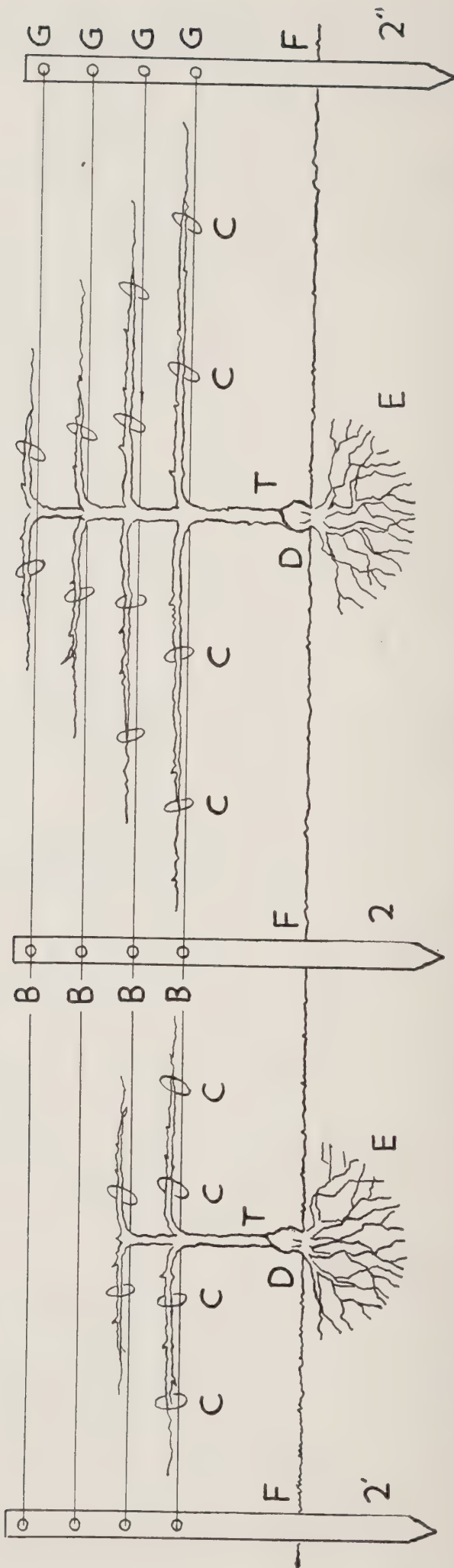
D. Plant Graft above surface.

E. Spread roots in natural position, without crowding.

F. Pipes, 3" Cedar Posts, or 2 x 2 inch stakes, may be used. Drive posts 2 feet deep. Height of posts depends upon type of Espaliers planted. Place terminal posts as far apart as planting will ultimately extend. Posts for a planting of Horizontal Cordons should be placed 20 ft. apart. All posts inserted in the ground should be painted with creosote, for longer last.

G. Hook nails used to attach wire to wooden posts.

T. Trunk—Espaliers planted against a wall should be set at least one foot distance from wall to allow for good aeration and root spreading.



One or more Espaliers planted against a wall, fence, or in the open.

To Support a Single Tree Against a Wall or in the Open—

Other than wire supports, a trellis of wooden laths can also be used for support. The trellis made with 2 inch laths nailed together in the form of squares somewhat like a checker board, and painted green or white will make a very attractive background. The leaders are fastened to the trellis with raffia, willow or tarred twine.

Fastening—Fan Shaped Espaliers—

1. From the center or trunk of the tree, mark off 8 feet on either side. Then drive spikes into the wall. Place spikes at a distance of 18 inches apart. Wire should be stretched lengthwise, passing in front of the tree branches and attached to the spikes.

Planting a Belgian Fence—

1. Plant trees at a distance of exactly 2 feet apart from each other in order to obtain perfect square with the branches. (It is perfectly alright to plant a Belgian Fence with trees spaced 3 feet apart from each other. This type of planting will give an oblique effect rather than a diamond lattice pattern.)

2. Plant the trees so that the graft comes one inch above the surface.

3. The clutch of each tree should be set all on the same level or parallel line. This step is most essential since the perfection of the entire lattice work is based upon this one fundamental.

4. Should a clutch of a tree come higher than necessary, plant the tree deeper in the ground until the clutch is adjusted to match the other trees.

5. Drive posts into the ground of either cedar or pipe. One at each end of the row of planting. The posts should be as high as you wish the planting to ultimately reach. String horizontally three rows of galvanized wire and attach to the posts. The first wire should be 18 inches from the ground. The second wire should be one foot above the first wire. The third wire should be one foot above the second wire. Fasten wire to posts. (If cedar posts are used, hook nails are used to hold wire securely to posts.) Then tie branches to wire with raffia.

5b. Or, have supports made to order from your local blacksmith. Iron rods, the thickness of a pencil are shaped and soldered together to match the individual tree. One is placed behind each tree. The branches are tied to the rods with raffia. This method of support is an expensive proposition, but it gives an extremely neat effect since all the framework is hidden from view.

6. As a general rule, a Belgian Fence in time will ultimately attain a height of 15 feet if allowed its own way. But, the Fence may be kept within limited height. As soon as the trees have grown their leaders to the desired height, train the tops by bending slowly into horizontal position, giving the fence that finished effect. After leaders are bent to position, tie them to their supports with raffia.

ATTENTION—Wire, spikes, turnbuckles, hook nails, etc., can be purchased at any hardware store. Flanges can be obtained at any plumbing supply company. Cedar Posts may be obtained at a lumber mill.

Important!

Pruning Espalier Trees every year is essentially important and it is the main key in obtaining successful results. Pruning avoids excess wood, helps one to enjoy picking a larger and far superior crop of fruit every year and brings out the symmetrical pattern of the Espalier Tree. When an Espalier Tree makes too much wood, not only is the beauty and effectiveness of the Espalier lost, but the fruit crop will result in a scanty yield, if any at all.

At planting time, avoid pruning tops and side shoots on an Espalier tree. If necessary, pruning may be applied the following year.

Leaders or Arms are the main branches or skeleton of the Espalier Tree which gives the tree its symmetrical pattern.

Side shoots are the twigs which develop along the main leaders or arms.

The Elbow is that part of the leader or arm which forms the curve.

A Bearing Spur is a small round swollen-like bud usually surrounded by a cluster of leaves, which eventually forms the fruit.

Pruning Vertical Branched Espalier Trees—Apple, Pear, Plum, Cherry—

All side shoots longer than 4 inches should be cut back during the summer to 4 inches. But, should bearing spurs appear on a side shoot which is longer than 4 inches, don't prune that shoot, but allow it to bear the fruit first, for it takes 3 years for a tree to produce a single bearing spur. This pruning should be done about once a month during July, August and September.

Should the leaders become very compact with foliage thin the side shoots out, leaving spaces between bearing spurs 2 or 3 inches.

Prune the top of the main leaders in the early spring or winter when the tree is dormant. Cut previous year's top growth back to half its length with a sharp knife in a slanting position. The inner leaders should be kept about 6 inches shorter than the two end leaders. After the desired height has been attained, cut down to one eye each year; should they become too high, cut down below level of new growth, thus making space for future new growth. Espaliers can be allowed to grow almost any desired height, say from 5 to 12 feet. The pruning of the top leaders is very essential for it checks the future growth of the tree.

Pruning Horizontal Cordon Espalier Trees — Apple, Pear, Plum, Cherry.

Cut back side shoots to 6 inches. As a general rule, the fruit of a Horizontal Cordon is borne on the shoots that develop along the outer sides of the leader. Therefore, if thinning out is necessary, do so on the shoots which grow on the top or upper part of the main leader. Never prune the ends of the Cordon, unless the tree has reached its desired length, as such pruning prevents tree from making new growth.

Pruning All Espalier Peach, Nectarine and Apricot Trees—

The essential pruning should be done during the summer. Pinch every new shoot to two eyes, in doing so, two new young branches will be obtained. In the following spring one of these branches should be allowed to bloom, prune the other one down to two eyes. This one gives you the two young branches for the coming year. This procedure done every year creates a continual new supply of young wood. It prevents the side branches from becoming too big and taking all the strength. By following this method, the era of productivity of a peach tree is almost doubled. The bearing spurs are easily recognized during the dormant per-

iod, as all the blooming eyes are doubled. This enables one to decide more easily which branch to leave. Since Peach, Nectarine and Apricot trees all bear fruit only on the new wood made the previous year, this pruning must be followed very closely, if fruit is desired. After leaders have attained 15 inches, tie back like backbone of a fish so as to allow the sunshine and light to reach the eyes as the bearing eyes develop on the new wood during September and October, when exposed to the sun.

Pruning Fan Shaped Espalier Trees—Apple, Pear, Plum—

Cut all shoots developing along the leaders which form the framework for the Espalier tree, back to 8 inches, once a month during July, August and September. Don't prune off any shoots shorter than 8 inches.

The tree may be allowed to grow any size desired by trimming the ends of the leaders during the summer months.

In addition, any side shoots that protrude outward, should be cut back to 4 inches as they will never bear fruit.

Pruning Fan Shaped Espalier Trees—Peach, Nectarine, Apricot

Follow instructions for "Pruning All Espalier Peach, Nectarine and Apricot Trees". In addition, any side shoots that develop outward, cut the shoots back to six inches.

Planting and Care of Small Berries

GRAPE VINES

The Grape, while it loves moisture, must have well-drained land, and there should be free exposure to sun and air. Annual and careful pruning in early spring when fully dormant is essential to the production of good grapes, and if the land is poor, manuring must not be forgotten.

Grapes, like peach trees, grow their fruit only on one year old canes. It is futile to plant grape vines older than one or two years old. These also must be pruned back severely like the peaches. The grapes, like the peach, will never bear fruit the first year after planting, regardless how old a vine you may plant. Most of the old wood must be eliminated to get live prolong growth. Cut tops back to 6 inches above the ground. Plant the "graft" below the surface or plant the vine just above the second bud.

Plant Grape Vines 8x10 feet apart each away.

BLUEBERRIES

Blueberries require an acid soil containing an abundance of peat moss or rotted leaf mold or other partially rotted vegetable matter and sand. They need moist loose soil, free from rock. If too heavy with clay, sand will improve it. They are self-supporting shrubs. For fall planting, be sure to bring the earth well up around the plant. This will protect the root system and prevent it from heaving during the winter.

Blueberry roots are distributed just under the surface of the soil. For this reason, cultivation should be very shallow, not over two inches deep, so as to leave roots undisturbed. Keep witch grass and other weeds away from plants as it harbors white grubs that feed on the berry roots, and weeds will absorb the moisture needed by your plants. Don't use lime on soil intended for blueberries, for lime will sweeten the soil and make it unfit for this purpose. Avoid barnyard manure on your plants because it causes fungus disease.

They require no pruning for the first few years after planting.

But, when plants are half grown or get dense and overbear, thus producing an inferior size of fruit, then trim out the weak branches. As a fertilizer, a mulch of oak leaves or peat moss is excellent. Plant 4x4 feet apart each way.

IMPORTANT—Blueberries require acid soil. If the nature of the soil is not acid, we strongly urge you to refrain from planting them if you wish to avoid future dissatisfaction.

We noted several instances where gardeners went through great efforts and heavy expenses to prepare a bed for Blueberries by turning sweet soil to acid. Frankly, the first year, the plants produced an amazing crop of extra large berries of the finest quality. The following years, the crop was very discouraging for the Blueberry bushes lost their vitality and the fruit crop was small and scanty. Why? Because, regardless how much one tries to change alkaline soil to acid, it is in vain, for the simple reason rains or other elementary influences which are unconscious to the human eye, washes away the acid contents present in the soil and three or four weeks later turns the soil back to its original alkaline state.

Undoubtedly, you know when it rains, soils **never** remain stationary, so it is only logical that the large area of sweet soil will gradually mix with the nearby small area of acid soil causing it to result to alkaline.

But, if you insist on planting Blueberries, then choose an elevated location so that the rains cannot wash surrounding sweet soils into that area specially prepared with acid contents for the growth of Blueberries.

RASPBERRIES

Should be planted four feet apart each way. In training, allow only a few canes to grow from each plant, cutting away all suckers to throw the strength into the stalks for bearing; all old canes should be removed when the bearing season is over.

A good gravelly soil, or a deep moist loam is generally considered best for the raspberry, yet the plants do well on light or even sandy loam, and on such soil the fruit will ripen some days earlier. The red varieties should not be placed on hard, clayey land, nor on low, wet soil. The black varieties do very well on claying soil.

Newly set plants should be hoed or cultivated quite frequently, especially early in the season, as it is important that a good start should be obtained the first year. It is important that all weeds should be kept down the first as well as the following seasons. Cultivate very shallow to prevent injury to the roots. Old stable manure is the best fertilizer for general use. On light soils it is best to apply it as a mulch.

The first season only two or three shoots or canes should be allowed to grow from each root or hill. In midsummer, when the canes have reached a height of about two feet, the top should be pinched off with the thumb and finger. This will cause the canes to throw out laterals. These branches should likewise be cut back when they have made a growth of about one foot from the canes. If this summer pruning is neglected until the bushes get to be three or four feet high, shears should be used to cut them back to within two and one-half feet of the ground. It is not necessary to head in all varieties during the summer. Some prefer driving a stake in each hill to which the bushes can be tied to keep them from dropping to the ground when fruiting. The bushes can be allowed to grow, and in the late fall the surplus suckers and the old fruit canes can be cut out, and the suckers that are left for the next year's crop cut back to within two and one-half feet of the ground.

CURRANTS AND GOOSEBERRIES

Plant four feet apart. Sawdust should be used as a mulch. They flourish in almost every kind of soil, but to have the fruit

in perfection, plant in rich, deep soil, and give good annual pruning and cultivation. Every year, as soon as the fruit is picked, cut all wood 3 years old. Allow 5 to 6 new shoots to form each year. When plants are grown as stools or bunches, the older and feebler suckers should be cut out, such as crowd the plant.

STRAWBERRIES

Plant 1 to 3 feet apart each way. Plant with a spade. Push spade to its full depth into the ground. Press spade to one side, insert roots, spreading them out like a fan shape. The crown of the plant should be set at surface level. Remove spade. Press earth against roots with foot. Remove all dry or bruised leaves. Newly set plants should be watered copiously every morning for the first ten days. They do best on soil of light sandy loam, retaining the summer moisture easily is best. Old soil, may be improved by the plowing of green crop, wheat, clover or vegetables. If the soil is not already rich, it may be made so with well rotted manure. The hoe must be used freely, not only to keep the weeds out, but to have always a layer of finely pulverized soil as a mulch on the top. In early winter when the ground is frozen, cover the whole with long straw, which should be removed from the plant in the spring but allowed to remain between the rows as a mulch to keep the berries clean next summer. By planting alternate rows of two different varieties, one will enjoy a larger and better crop of luscious berries every year.

WE OFFER SPECIAL SERVICE

We grow and sell only varieties which are in popular demand. However, if you desire any special, rare varieties, not available elsewhere, we offer to the fruit grower a special service for both extensive orchards or small home gardens.

There are several hundred apple and pear varieties which grow well in North America. The size, color and aroma excel most of the sorts sold in fruit stores. It is my endeavor to make the garden lover acquainted with rare and choice fruit.

Orchards can and must be improved. Advise what varieties you wish grafted, and we shall determine the proper understock to do it on. Orders must be placed six months in advance.

TRAIN YOUR OWN ESPALIER FRUIT TREES

We supply trees in their preliminary stages and you can complete their training. Customers who have a large area to cover—can avoid additional expenses and make a good investment. It is advisable to plant young trees.

If interested, write us for further details.

Training the trees yourself, makes interesting work, you save money and in a few years you will have full shaped Espaliers on your grounds.

MEMORANDUM

MEMORANDUM

CONDITIONS OF SALE

Terms

Our terms are strictly cash with order. Express C. O. D. orders must be accompanied by one-fourth of the amount of the order as a guarantee. To those who wish charge accounts, our terms are 30 days from date of invoice, net. Charge accounts are extended to customers who have established credit with us in the past, or satisfactory references from unknown parties. Interest at 2% per month to be charged after maturity.

Make check or money order payable to Henry Leuthardt.

Packing or Crating

There will be a minimum packing charge of 50c added to orders less than \$10. On orders amounting to \$10. or over, add 5%, on Espalier orders, add 10%.

Shipping Season

Transplanting can be done successfully in the Spring or Fall, as either season is equally good. Our Spring Shipping Season commences about March 15th and continues until late May. Our Fall Shipping Season starts around October 15th and continues through December 31st, providing the soil is workable.

Due to certain handicaps, if customers request shipment to arrive at a specified time, we make exceptions only in such instances. Order Early—as orders are filled strictly in rotation as they are received.

NOTE: If you have difficulty making your selection, please send us your space measurements and we will offer you our best suggestions. If your requirements call for items not listed or sizes not quoted, please communicate with us, and we will give you an immediate reply as to whether or not we can furnish them.

Shipping Facilities

In ordering nursery stock our customers are requested to state explicitly the quantity, sizes and the varieties they wish. Give careful and definite shipping address to avoid mistakes in delivery.

We make shipments by Express Collect or Parcel Post. All Express Shipments are insured. When losses occur by detention or mishandling, claim should at once be made on the Transportation Company by the Consignee and notice sent to us.

Parcel Post shipments are not insured and travel at the risk of the buyer. We do not suggest parcel post shipments if there is an express station within limits. It is sometimes necessary to cut back tops of trees to comply with parcel post regulations for maximum measurements of parcels. This does not injure the trees, as tops should be pruned back when planting.

OUR GUARANTEE

Our Nurseries are inspected by authorized government inspectors annually and all provincial regulations complied with. A State Certificate of Inspection accompanies each shipment. We guarantee all nursery stock sold by us to be true to name, free from insect pests or plant disease. Our hardy, northern grown stock is of first quality and under ordinary conditions will grow well wherever other fruit trees thrive. Continued growth depends on soil, weather conditions, planting and after care. Our Berry Plants are first quality—but hold no guarantee.

After 10 days, it is mutually understood that the nursery stock is satisfactory. However, any complaint about failure to start growth must be made in writing, within six months from date of purchase and we will replace nursery stock at half price with the following understanding: That the bill is to be paid within 30 days after stock has been received, that our planting suggestions are followed, and the death of the tree was not caused through any visible injury done by mice, rabbits or other depredators beyond our control.

The customer becomes responsible for full payment of all nursery stock after shipment has been delivered and accepted.

State of New York

DEPARTMENT OF AGRICULTURE AND MARKETS

C. Chester Du Mond, *Commissioner*

Certificate of Inspection of Nursery Stock

THIS IS TO CERTIFY that the nursery stock of HENRY LEUTHARDT of PORT CHESTER, County of WEST-CHESTER, State of New York, has been duly examined in compliance with the Agriculture and Markets Law and has been found to be apparently free from all injurious insects and plant diseases. This certificate is valid until October 1, 1948, unless revoked before that date.

Dated, Albany, N. Y., September 20, 1947.

C. CHESTER DU MOND, *Commissioner*
A. B. BUCHHOLZ, *Director, Bureau Plant Industry*

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